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Dutch Prime RMBS: a primer

ABS In-Depth

RaboResearch
Global Economics & Markets
mr.rabobank.com

Maartje Schriever
ABS Analyst
+316 25 14 38 73

Cas Bonsema
Senior Financials Analyst
+316 12 76 66 42

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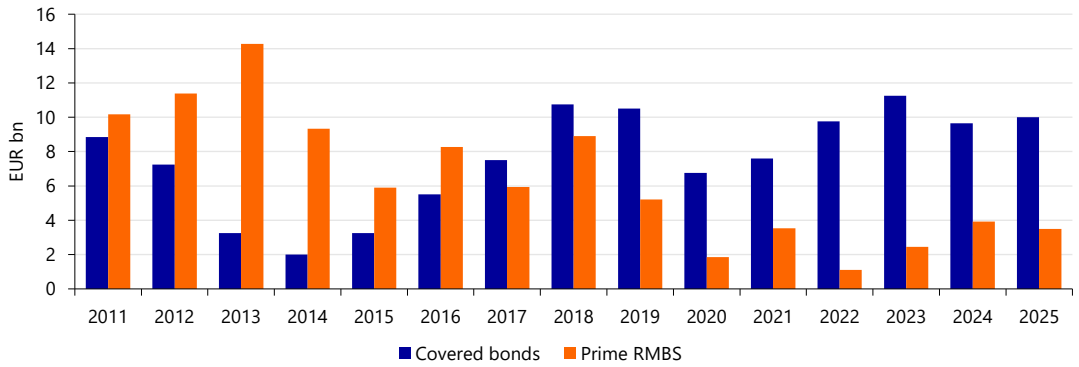
1 Introduction

Dutch Prime Residential Mortgage-Backed Securities (RMBS) continue to serve as an important funding tool for the €850bn+ stock of Dutch mortgage loans. This primer focuses solely on Dutch Prime RMBS; buy-to-let (BTL), Non-Prime and non-Dutch transactions are out of scope. However, issuance of Dutch Prime RMBS has moderated over the past decade as alternative funding sources have become relatively more attractive and gained in popularity. Although both RMBS and covered bonds—its closest alternative—are backed by mortgage loans, they differ notably in terms of structure, regulatory treatment, and cost efficiency. Covered bond funding is generally cheaper than the equivalent RMBS funding and it allows for the issuance of longer-dated debt, whereas RMBS maturities typically do not exceed five years.[1]

Figure 1 illustrates a clear downward trend in Dutch Prime RMBS issuance over the last decade (and beyond), despite some periodic pick-ups. Over the same period, covered bond issuance has steadily increased, indicating a shift in funding preferences among Dutch issuers. At the same time, for some issuers, RMBS has faced growing competition from whole loan funding that has gained traction in recent years among investors seeking yield in less liquid asset classes.

Figure 1: Dutch Prime RMBS and covered bond issuance



Note: For covered bonds only EUR benchmarks are included
Source: ConceptABS, Rabobank

Amongst other factors, the regulatory landscape plays an important role in the preference for covered bond funding. In particular, RMBS is subject to less favourable prudential treatment, meaning bank and insurance investors need to hold more capital for RMBS tranches relative to comparable covered bonds. Moreover, for bank treasury investors buying RMBS for their liquidity buffers, RMBS can only achieve the less attractive Level 2B HQLA classification as opposed to Level 1 for covered bonds, resulting in a higher valuation haircut for instance. Additionally, RMBS is subject to a stricter, complex and more burdensome regulatory framework, i.e. the

Securitisation Regulation, which came into force on 1 January 2019. Amongst other things, that imposes extensive due diligence requirements on investors.

Despite the trend away from Prime RMBS funding, 2023 encouragingly marked the return of two (regular) issuers to the RMBS market after several years of absence, **a.s.r.** with **Delphinus** and **ING** with **Green Lion**. **ING**, also an active covered bond issuer, demonstrates that RMBS continues to play a complementary role in banks' funding toolkit, offering a degree of diversification. Overall, the Dutch Prime RMBS landscape is relatively diverse with several active programmes, even though supply volumes are more modest compared to the past.

The Dutch mortgage market has also undergone gradual but meaningful changes over the past decade. For instance, adjustments to the Dutch tax code and mortgage underwriting standards have reshaped the composition and risk profile of RMBS collateral pools. Meanwhile, the rise of so-called '*regiepartijen*'—parties that originate mortgage loans, typically on behalf of institutional investors—have introduced the popular 'Originate-to-Manage' model. These originators manage the funds of a lot of Dutch (but also foreign) pension funds and insurers.

Overall, these developments highlight the importance of understanding where Dutch Prime RMBS stands today, how it has evolved, and what the implications are for issuers and investors alike.

1.1 A roadmap

The next section begins with an overview of Prime RMBS issuers and their recent transactions. This is followed by an analysis of the collateral backing RMBS deals, starting with a general overview of the Dutch housing market, then moving on to the mortgage market including different types of originators, interest rate characteristics of the loans and the role tax deductibility plays. Underwriting standards governing the collateral assets are then examined, followed by an overview of the various mortgage loan products that may serve as collateral. A step-by-step description of a typical deal structure and its key features is then provided. Finally, the risks associated with investing in Dutch RMBS are discussed, ranging from the most important risk, being credit risk, to prepayment and interest rate risks, and ending with embedded risks.

2 Issuer landscape

2.1 Overview of issuer types

A diverse range of issuers are active in the Dutch Prime RMBS market including banks, an insurer and '*regiepartijen*'—*parties that originate mortgage loans, typically on behalf of institutional investors*—each with different motives and incentives to issue Prime RMBS. Dutch banks primarily issue Prime RMBS as a cost-effective funding tool (relatively, compared to unsecured funding instruments), sometimes referred to as 'funding' transactions. Whilst they have the option to issue covered bonds, which are generally cheaper and can offer longer-dated funding, issuing RMBS can offer investor diversification by tapping (partly) into a different investor base. Similar to banks, insurers, such as **a.s.r.** issue RMBS not only to secure relatively cheap funding but also to diversify their existing funding sources. However, unlike banks, insurers are unable to issue covered bonds, which therefore makes RMBS 'the next best thing'.

In contrast, '*regiepartijen*', such as **Venn** and **Tulp Hypotheken**, tend to be more driven by market conditions, entering the securitisation market primarily to target arbitrage opportunities and/or to refinance existing funding sources. Table 1 provides an overview of all issuers active since 2024, whilst a more comprehensive list can be found in Appendix 6, Table 4.

Table 1: Overview of Dutch Prime RMBS transactions since 2024

Programme name	*Last issue date*	*Originator*	*Issue size (mn)*
Candide	Jun-25	Lloyds Bank	€790
Delphinus	Jan-25	ASR	€531.5
EDML/(EDML Blue)	Oct-24	Elan Woninghypotheken/Venn Partners	€360.5
Golden/Green Apple	Jun-25	Argenta Spaarbank	€798
Orange/Green Lion	Jun-24	ING	€1,000
Saecure	Mar-24	Aegon	€636.7
(Green) Storm	Feb-25	Obvion	€526
Tulip Mortgage Funding	Sep-24	Tulp Group	€462
Weser Funding	Oct-25	Oldenburgische Landesbank	€ 529.2

Source: ConceptABS, Bloomberg, Rabobank

2.2 Market developments

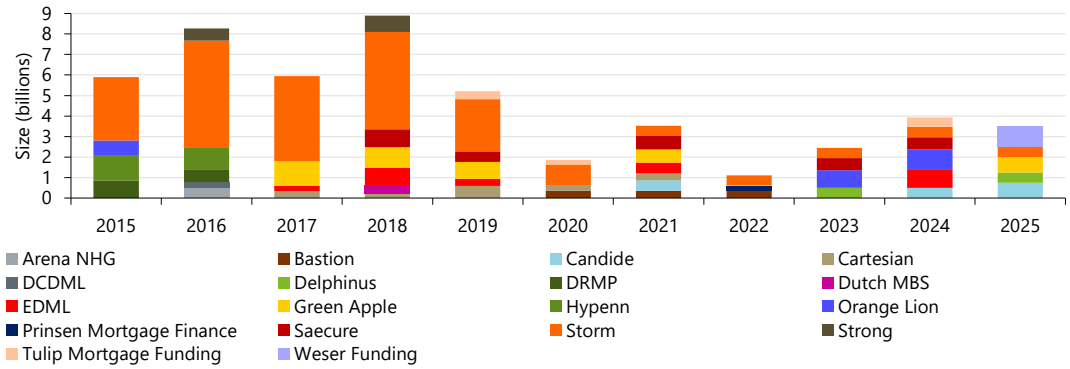
While the majority of Dutch Prime RMBS transactions continue to be primarily funding-oriented, several arbitrage-focused deals have emerged over the last decade, particularly between 2017 and 2021, driven by (historically) tight spreads and rock-bottom interest rates. Arbitrage-driven deals often involve selling (nearly) the entire capital stack. In essence, these deals aim to capture ('arbitrage') the difference between the yield on the mortgage assets and the cost of funding in capital markets (i.e. the spread).

Apart from this cohort of 'arbitrage'-issuers, the issuer base has broadened in recent years with for instance **Lloyds**, **a.s.r.** and **ING** returning to the market after extended absences, in some cases since (well) over a decade. In the case of **ING**, the end and repayment of the ECB's cheap funding (i.e. TLTRO) appears to have driven the issuer back to the RMBS market in a bid to diversify their funding sources. Most recently, **Oldenburgische Landesbank** made its debut in the public market with **Weser Funding**, having previously executed only retained deals backed by mortgages originated by **Tulp**.

Finally, over the past decade, a trend toward green RMBS issuance has emerged. Notably, **Obvion's** Storm programme issued the first-ever Green RMBS in 2016 (Green Storm 2016), aligning with ICMA's Green Bond Principles and securitising mortgage loans on energy-efficient homes. Obvion has exclusively issued Green deals since 2020. Additionally, upon ING's return to the RMBS market in 2023 after an 8-year hiatus, they too switched to the green format by issuing Green Lion 2023, with a follow-up green deal in 2024. Finally, whilst there has not (yet) been a European Green Bond (EuGB) RMBS, the latest Green Storm aligns with the EU Taxonomy on a 'best efforts' basis, whereas the latest Green Lion also intends to be partially[2] aligned.

Overall, the issuer landscape has become more diverse in terms of both participants and transaction types. However, despite this growing variety, the market still remains relatively concentrated as a handful of large banks and well-established recurring programmes tend to comprise most of the issuance.

Figure 2: Issuance per year per shelf



Source: ConceptABS, Rabobank

3 Collateral

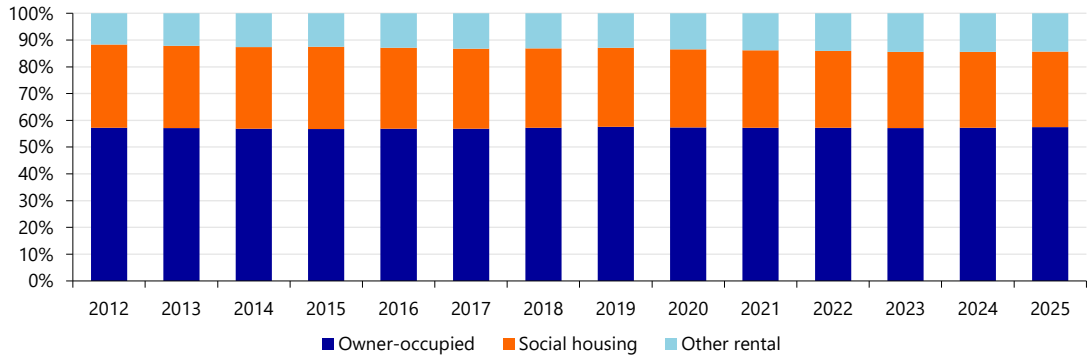
The collateral description starts with a general overview of the Dutch housing market, which is the ultimate exposure for RMBS noteholders. The subsequent paragraphs zoom in on the mortgage market and the specific mortgage loan products in the Netherlands.

3.1 Dutch housing market

The Dutch housing market broadly comprises three different pillars, the owner-occupied segment, the social housing (rental) segment and the other rental segment (including private rentals). From the large amount of mortgage debt in the Netherlands, one would not expect the owner-occupied sector to be relatively limited, but in international comparisons, the stock of owner-occupied properties of 57.5% (as of 2025) is not particularly high. The remainder of the housing stock are rental properties, with the vast majority owned by social housing associations at close to 28% of the total housing stock. Moreover, social rentals comprise around 66% of the total rental stock, with the private sector being relatively small.

However, the share of social housing within the total housing stock has declined by approximately 2.9ppts between 2012 and 2025, as properties predominantly shifted to the private rental sector. In fact, the share of social housing within the total rental stock fell by around 6.5ppts over the same period. Overall, during this period, the Dutch housing stock expanded by 12.2%, while the distribution between the owner-occupied and rental segments remained broadly stable.

Figure 3: Dutch housing stock distribution over time, per type of housing

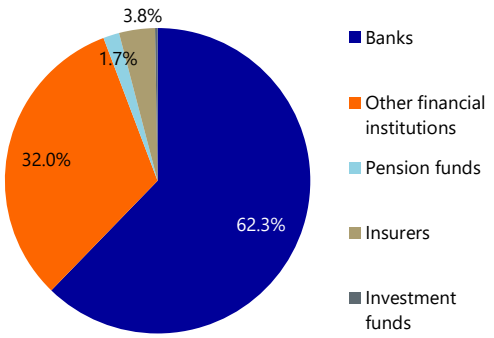


Source: CBS, Rabobank

3.2 Mortgage market

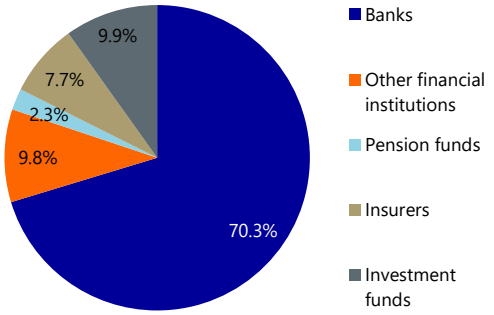
The prevalence of independent mortgage advisors and intermediaries makes it relatively easy for new parties to enter the Dutch mortgage market. This is one of the reasons why the Dutch mortgage market is highly competitive, with dozens of originators active. In addition to the traditional large bank lenders, several large insurers are active in the market, and new types of lenders have also entered over the years. A key group among these are so-called '*regiepartijen*' or third-party originators, who typically source funding directly from institutional investors such as pension funds seeking direct exposure to Dutch residential mortgages.

Figure 4: Market share mortgage stock 1Q2010



Source: DNB, Rabobank

Figure 5: Market share mortgage stock 3Q2025



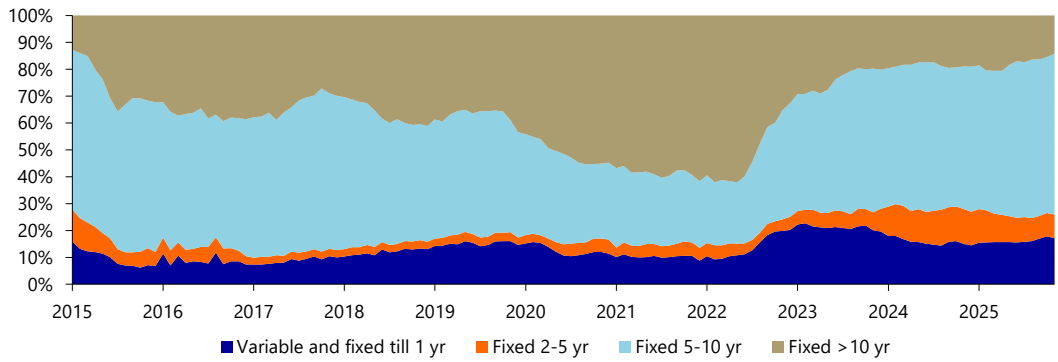
Source: DNB, Rabobank

Overall, the Dutch mortgage market has evolved considerably over the years, both in terms of the breadth and types of originators active in the space. Figures 4 and 5 show the distribution of the Dutch mortgage stock by type of entity. Banks continue to dominate, holding 70.3% of the total outstanding mortgage debt, followed by investment funds (9.9%), other financial institutions[3] (9.8%), insurers (7.7%), and pension funds (2.3%). However, it is worth noting that the actual total mortgage exposures of pension funds and insurers are likely higher, as they often invest in mortgage loans indirectly through units held in investment funds, particularly in the case of pension funds. Since the start of 2010, institutional investors – such as investment funds, insurers, and pension funds – have significantly increased their market share and now represent a sizeable segment of the Dutch mortgage market.

3.2.1 Mortgage fixed-rate periods

The vast majority of Dutch mortgage loans carry fixed interest rates, typically set for a specific period. The most common fixed-rate period is generally 10 years. This is driven by the way affordability tests are conducted. When the interest rate is fixed for at least 10 years, the mortgage originator uses the actual interest rate to determine the maximum mortgage that can be granted. However, for fixed-rate periods less than 10 years, the originator is required to use a (higher) stressed interest rate (currently 5%) for the affordability test, thereby constraining the maximum borrowing capacity. As a result, it is less attractive to opt for short(er)-term rate fixings, unless borrowing capacity is not a constraint. In addition to the 10 year fixing, longer fixings like 20 and 30 years are also seen (particularly during the low interest rate years), while shorter fixings typically represent a small(er) segment of the market.

Figure 6: Distribution fixed rate periods of mortgages per origination year



Source: DNB

However, the distribution between the various fixed-rate periods depends on vintage, reflecting borrowers' responses to prevailing, and expected, interest rate conditions at the time of origination. In the low interest rate years of 2019-2021, many borrowers opted for long-term

fixed-rate periods of 20 and even 30 years to lock in the historically low rates. In contrast, with (relatively) high interest rates in the years since, there has been a shift back towards shorter fixed-rate periods of 10 years or less. This is partly driven by affordability concerns as fixing for longer means a higher interest rate and therefore less borrowing capacity, but potentially partly also driven by borrowers expecting lower interest rates in the future, and therefore making borrowers reluctant to lock in such 'high' rates for too long.

At the end of a specified (fixed) period, the interest rate resets. The reset date is pre-announced by the originator and they must provide an offer to the borrower for a new interest rate (and term). This offer must, by law, match the rates being offered by the originator to new clients. If the borrower does not make a choice, the default is typically to reset the fixed-rate period to the original fixed-rate period. For instance, if the fixed-rate period was originally 10 years, an automatic reset would again fix the interest rate for 10 years. At the interest rate reset date, a borrower could also decide to refinance the mortgage penalty-free. In any case, there is never an automatic switch to a floating rate after the fixed period ends.

3.2.2 Mortgage interest tax deductibility

The Dutch tax code has important implications for the Dutch mortgage market as it allows homeowners to deduct the interest paid on their mortgage from their taxable income. This reduces the amount of income tax owed and lowers the effective cost of mortgage borrowing. As a (simplified) example, if a homeowner earns €75,000, has an annuity mortgage of €400,000, equal to its fiscal appraisal value ('WOZ-waarde'), an interest rate of 3.5% and an imputed rent tax ('eigenwoningforfait') of €1,400, then the annual mortgage interest paid is ~€13,900, the taxable income is €75,000 + €1,400 - €13,900 = ~€62,500. Thus, under the maximum deduction rate of 37.56% (in 2026), the tax benefit would be ~€4,700 per year, calculated as 37.56% x (€75,000 - €62,500). Hence, the benefit can be significant and in this case results in net mortgage *interest* costs of ~€767 per month compared to a gross *interest* cost of ~€1,158, a reduction of one-third.[4]

As of 2026, mortgage interest and other deductible expenses related to owner-occupied housing are deductible at a maximum tax rate of 37.56%. However, in the years before, the interest tax deductibility benefits were already reduced. The Dutch government has gradually reduced the mortgage interest deduction for individuals in the highest income bracket since 2014. Initially, the deduction rate of 52% was lowered by 0.5 percentage points annually. This pace accelerated in 2020, with annual reductions of 3 percentage points. In 2023, the deduction rate was aligned with the tax rate applicable to the second-highest income bracket at the time.

Prior to these changes, new legislation already came into force on 1 January 2013 that restricted the interest tax deductibility for newly originated (owner-occupied) mortgage loans to annuity and linear mortgages that fully amortise mortgages within 30 years.[5] Other types of loans, such as interest-only mortgages, no longer qualify for any favourable tax treatment. However, all mortgage loans originated prior to 1 January 2013 are still subject to the old tax regime that did not have any conditions on amortisation. Hence, grandfathering applies (subject to conditions), and this also includes a refinancing or relocating and carrying over the old terms of the original mortgage loan.

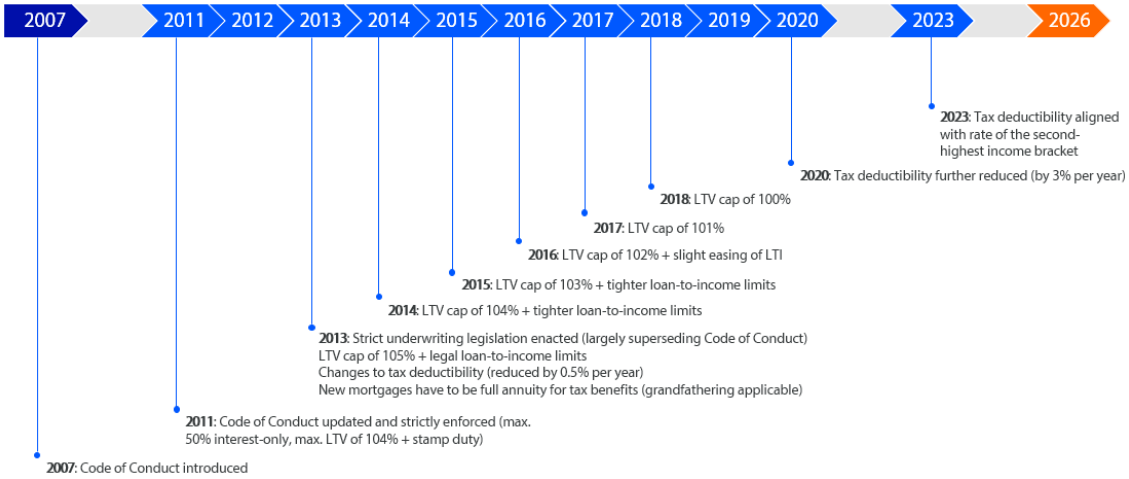
Despite the reductions in tax deductibility, the Dutch government still substantially subsidises borrowers' mortgage payments. Even though other housing-related taxes partially unwind these benefits, the tax deductibility feature still incentivises mortgage lending. In our view, it is also the primary reason why mortgage debt is so high in the Netherlands, and why it will likely remain relatively high despite the partial reduction in fiscal benefits.

3.3 Underwriting standards

Underwriting criteria of the different originators are highly homogenous as they follow from the mandatory Mortgage Code of Conduct and related underwriting legislation. The degree of leeway

to these standards used to be considerable up until 2007, moderated somewhat between 2007 and 2011 and has been virtually non-existent since then, in part due to the credit crisis. Over the last 14 years, numerous changes have been implemented with respect to the Code of Conduct, tax deductibility and restrictions to maximum LTVs. An overview of these main standards and key changes is presented in Figure 7.

Figure 7: Underwriting standards over time



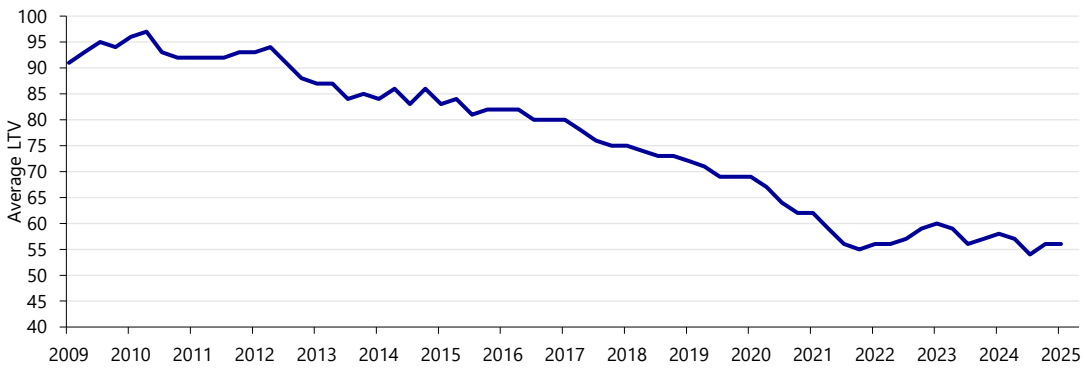
Source: Rabobank

3.3.1 Loan-to-value (LTV) ratio

Mortgages are subject to a maximum statutory loan-to-value (LTV) ratio of 100%, a limit that has been in place since 2018. This reflects a broader tightening of underwriting standards over the past decade and beyond. Between 2011 and 2013, the Dutch regulator (AFM) began strictly enforcing a new industry standard, curbing the flexibility originators previously had under the Mortgage Code of Conduct. However, prior to 2011, lenders could deviate from this code, and the generous tax incentives contributed to the prevalence of (relatively) high LTV ratios. The statutory maximum LTV was then gradually reduced from 106% in 2012 to 100% in 2018. However, if energy-savings measures are conducted and financed by mortgage borrowing, the LTV may be as high as 106%.

Overall, despite the tightening in underwriting standards, the 100% LTV limit means LTVs on Dutch mortgage loans granted for home purchases (average below includes all mortgage loans, including e.g. low LTV refinancings) still tend to be relatively high compared to other countries.

Figure 8: Average LTV of new mortgage applications



Source: Monitor Koopwoningmarkt, based on HDN data

3.3.2 Debt-to-income ratio

Strict debt-to-income limits are also part of the special underwriting legislation and they largely follow from the Mortgage Code of Conduct. In 2007, this code introduced a standardised method to calculate the maximum mortgage amount on the basis of a fixed ratio of housing expenditures to total income ('*woonquote*'). This uniform ratio follows from an annually updated income set calculated by NIBUD, a Dutch consumer advisory body. The ratio increases with income and with the interest rate on the mortgage. From 2007 onwards, non-compliance with this ratio had to be 'explained' by originators. Especially for young borrowers with good job prospects, these 'explain' deviations were a common occurrence. However, from 2011 onwards, a stricter regulator has significantly reduced the leeway for non-compliance.

In recent years there have been some important changes with respect to the debt-to-income underwriting standards. A notable shift is that as of 2023, the second income is fully counted in mortgage calculations, whereas it was only included at 33% until 2012, increased to 50% by 2016 and then gradually raised each year leading to full inclusion. Furthermore, in 2024, single-income households earning at least €28,000 were granted an extra (permanent) borrowing capacity of €16,000, which was increased to €17,000 in 2025.

Finally, there are exceptions in place with regards to energy efficient homes, where the maximum mortgage based on debt-to-income ratios can be increased by a maximum of €50,000 for the most energy-efficient properties but the amount varies depending on the energy label as shown in Table 2. We note that the LTV cap of 100% still applies however. Similarly, up to €20,000 more can be borrowed for sustainable home renovations, again depending on the energy label, with lower labels being able to borrow more, as shown in Table 3. However, the total loan must still not exceed a maximum loan-to-value (LTV) of 106%.

Table 2: Additional mortgage amount for an energy-efficient home

Energy label	*Additional mortgage amount*
E, F, G	€0
C, D	€5,000
A, B	€10,000
A+, A++	€20,000
A+++	€30,000
A++++	€40,000
A++++ (with 10-year energy performance guarantee)	€50,000

Source: Overheid.nl

Table 3: Maximum extra mortgage amount for sustainability improvements

Initial energy label	*Maximum additional mortgage amount*
No energy label	€10,000
E, F, G	€20,000
C, D	€15,000
B, A through A+++	€10,000
A++++	€0

Source: Overheid.nl

Nationale Hypotheekgarantie

'*Nationale Hypotheekgarantie*' (NHG) is the publicly-run mortgage loan guarantee system in the Netherlands. It is managed by the 'Waarborgfonds Eigen Woningen' (WEW) and was established by the government in order to stimulate home-ownership among lower-income households and first-time buyers.

The loan guarantee protects the borrower from any residual debt (including interest arrears and costs of selling the property) after a forced sale of the house, conditional on the reason being unforeseen life events such as death, unemployment, long-term illness, and most importantly, divorce. However, it is the creditor, not the borrower, who must claim the credit loss at WEW in order to receive compensation. For mortgage guarantees originated from 2014 onwards, 10% of the total loss (vertical slice) must be absorbed by the mortgage originator to ensure proper (credit) risk assessment and loan monitoring. Importantly, if the mortgages are securitised, the SPV bears this 10% loss.

The guarantee system is publicly backed but fully pre-funded. Borrowers pay an upfront lump-sum fee, currently 40 bps of the loan value as of 2026. These costs cannot be included in the mortgage loan due to LTV restrictions (unlike the past), meaning the borrower must use their own funds. However, NHG still offers a financial incentive as the reduced credit risks for the originator results in lower interest rates, which benefits the borrower. The NHG fund is currently €1.8bn in size (Q3 2025), guaranteeing a total notional mortgage principal of €227bn. The capital ratio of the fund stands at 0.82%, and has remained relatively stable the last few years. WEW has an explicit back-stop agreement with municipalities (50% of mortgages originated until 2011) and the government (50% until 2011, 100% of mortgages originated thereafter). If the fund appears to be running empty, the government is obligated to provide interest-free loans to the fund. In this way, the government is effectively guaranteeing mortgage loans with a NHG guarantee.

Strict underwriting criteria apply to NHG. As of 2026, the maximum property value eligible for the mortgage guarantee is €470,000, with an extended limit of up to €498,200 for homes that include energy-saving improvements such as insulation or solar panels. This reflects rising house prices and supports sustainable housing. The limits will be adjusted annually and follow changes in housing prices. Additionally, several strict checks, such as on credit history and income, have to be applied prior to origination. Since 1 January 2013, the mortgage must fully amortise within 30 years. From 2018, it is no longer mandatory for the borrower to have in place term life insurance to get an NHG mortgage, and since then it is also possible to refinance a non-NHG mortgage with an NHG mortgage if financial benefits can be gained, for instance a lower interest rate. Since 2025, the 'Arbeidsmarktscan' may be used to assess income stability for borrowers with temporary contracts, improving access to NHG for non-permanent workers.

Finally, a new 2025 rule allows heirs (e.g. a partner or child living in the home) to be added to the NHG loan after the original borrower's death, maintaining the guarantee without needing a new mortgage. Additionally, lenders may now use model-based valuations or fiscal appraisal ('WOZ') values for loan modifications that do not involve an increase in the loan amount, reducing the interest rate for borrowers.

The originator, and if securitised, the RMBS noteholders, are better protected against credit risks when there is a NHG guarantee in place. However, there are some caveats. If a claim is made to NHG, WEW will check whether the underwriting criteria of the relevant loan were in line with policies. In other words, there is an ex-post check, which could potentially result in a rejection of the claim by WEW (which has occasionally happened). In most RMBS structures, rejection of a NHG claim implies a breach of the representations & warranties, thus often obligating the seller to repurchase the (delinquent) loan from the structure. Another important consideration is that

NHG covers losses on the basis of full amortisation over 30 years, irrespective of the actual amortisation profile of the loan product itself. Hence, pay-out ratios can be below 100% for loans involving interest-only (and other non-amortising) parts, which still command a large share in Dutch RMBS deals. Last, but not least, WEW holds the same credit rating as the Dutch government (AAA) and is thus exposed to sovereign rating risk.

3.4 Mortgage loan products

Dutch Prime RMBS transactions are backed by residential mortgage loans granted to borrowers with a good credit history (i.e. the Prime segment). Additionally, all mortgage loans in Dutch Prime RMBS benefit from a first or sequentially lower ranking mortgage right and are backed by owner-occupied houses.

3.4.1 General features

Dutch mortgage loans typically feature a legal maturity of 30 years. The legal maturity, however, can be longer or even indefinite, but redemption is usually scheduled to take place after 30 years. Still, the actual life of a typical mortgage loan is often shorter. Early redemption (prepayment) of the full principal amount at the interest rate reset date is a common occurrence as penalty-free refinancing is possible then. Additionally, penalty-free full prepayment is often also possible in the case of relocation. Outside of these specific circumstances, penalty fees are typically applied to partial prepayments when prevailing interest rates are lower than the interest rate on the mortgage, as prepayment results in lost income to the originator in that case. The calculation largely follows a NPV calculation of the missed interest earnings. However, penalties are generally only charged if they exceed 10-20% of the (original) principal amount. But this can vary across originators, and some even allow for unlimited penalty free prepayments as long as own funds are used (i.e. not funds obtained through a mortgage refinancing).

Dutch mortgage loans are secured by vested mortgage rights on the underlying residential property. Hence, if the borrower is no longer able to fulfil their payment obligations, the originator has the right to foreclose on the property. These foreclosure rights are legally embedded in legislation covering Dutch mortgages. However, the recourse to the borrower may not be limited to only the underlying property. The vested mortgage rights may grant the originator full recourse to the borrower, potentially even able to make claims on the borrower's wealth and even on their future income. Still, the recourse gets restricted if a court assigns personal bankruptcy of the borrower. However, due to the rather strict nature of the Dutch personal insolvency regime, many borrowers will try to avoid such a bankruptcy scenario at all costs.

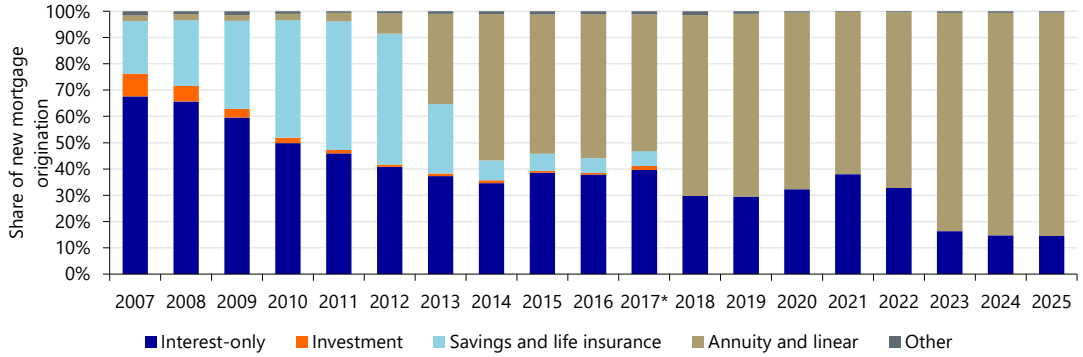
3.4.2 Structure of mortgage products

As a result of the pre-2013 Dutch tax system, there is a relatively complicated mix of mortgage loan products in the Dutch mortgage market. In order to benefit from maximum interest tax deductibility, nearly all of the 'older' (pre-2013) mortgage products share the common feature of a deferred principal payment at maturity. As such, interest payments, and the tax advantage, are thus maximised over the life of the loan. With the exception of interest-only loans, capital accumulation for delayed principal repayment takes place in linked savings or insurance products. This reserved capital is generally exempt from wealth taxation, making such mortgage product structures very tax-efficient.

Mortgage loans originated after 1 January 2013 have largely consisted of plain-vanilla (full) annuity and linear mortgage loans, but interest-only mortgages were still commonly originated due to the grandfathering of tax benefits for borrowers (i.e. hypotheekrenteaftrek). However, over time there's been a gradual trend towards amortising mortgage loans and in the last few years

the share of annuity and linear mortgages stands at over 80%. Whilst there's ongoing origination of interest-only loans, this mostly occurs due to refinancing and/or relocation of grandfathered loans.

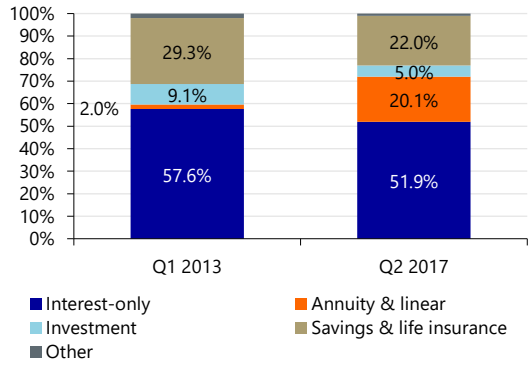
Figure 9: Product structure distribution of originated mortgage loans (per year)



Note: *H1 only
Source: DNB data from 2007-2017, HDN data from 2018 onwards

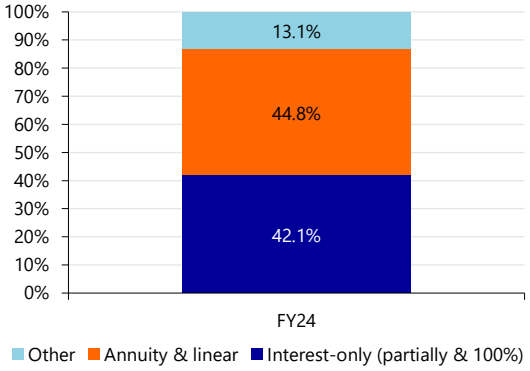
Despite the clear shift towards amortising loans in new mortgage origination, there is still a sizeable share of 'old' (principal deferred) products in the total Dutch outstanding mortgage debt. Based on selected banks' reporting on their mortgage books, the share of annuity and linear products is close to 45%, so there remains a sizeable share of interest-only (partial and 100%) and 'other' mortgage products. Still, the latter products have seen a relatively rapid decline from the levels seen in Q1 2013 and even Q2 2017, as new mortgage origination dominated by linear and annuity loans has kept flowing in. Overall, Dutch RMBS transactions generally feature a mix of different mortgage products, though it can vary across originators.

Figure 10: DNB data of mortgage stock by repayment type



Source: DNB

Figure 11: Selected banks' mortgage stock by repayment type



Source: Company reporting: ABN AMRO, ASN & Rabobank

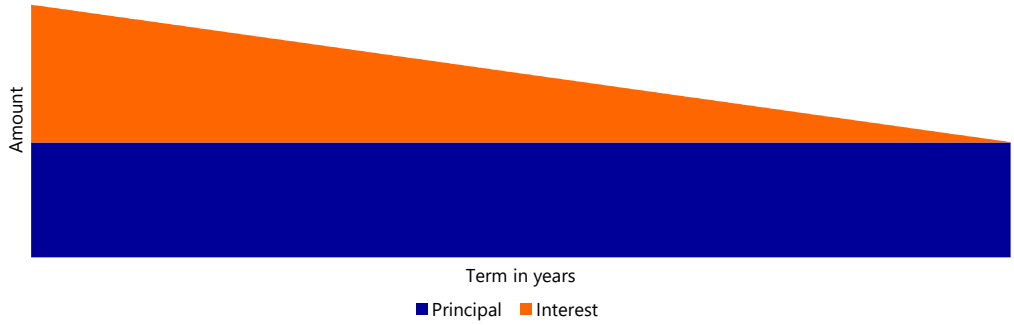
Before describing the most common loan products in more detail, it is worth stressing that typical 'old' (pre-2013) Dutch mortgage loans often consisted of a combination of different loan products, split amongst different loan parts i.e. an interest-only part and a bank savings part. Generally, these 'old' Dutch mortgage loans consist of two or three loan parts, but even more parts is also not uncommon. On the other hand, most of the 'new' mortgages originated after 2013 typically consist of only a single loan part. In stratification tables in RMBS reporting, the distribution in product mix is calculated on the basis of loan-parts. For risk calculations (LTV, delinquencies, etc.), however, the information is usually provided on an overall loan level.

3.4.3 Linear ('*lineaire hypotheek*')

A linear mortgage is a loan structure in which the borrower repays a fixed portion of the principal each month, accompanied by interest calculated on the outstanding balance. As the principal is

gradually reduced, the interest component declines, resulting in linearly decreasing monthly payments over time, as illustrated in Figure 12. This type of mortgage is characterized by a faster reduction of the loan balance and lower total interest costs compared to other mortgage types. However, it requires higher initial monthly payments, which may be less suitable for borrowers with constrained early cash flow.

Figure 12: Illustrative amortisation profile of a linear mortgage

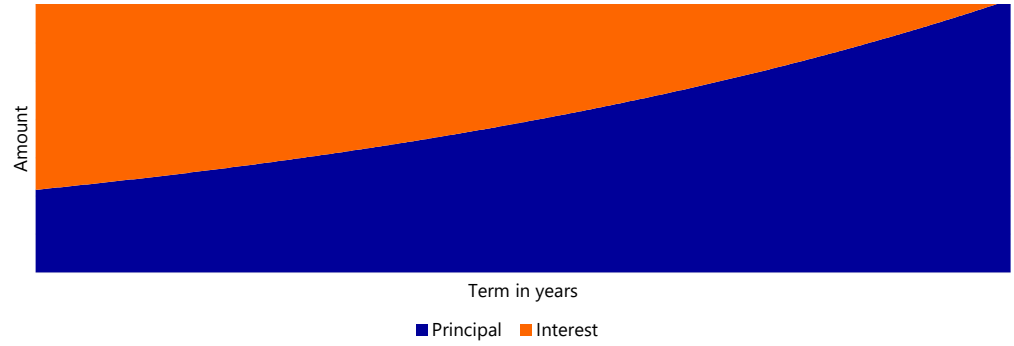


Source: Rabobank

3.4.4 Annuity (*'annuïteitenhypotheek'*)

An annuity mortgage involves fixed monthly payments throughout the loan term, composed of both interest and principal. In the initial years, the majority of the payment consists of interest, while the principal repayment is relatively small. Over time, the interest portion diminishes and the principal component increases, although the total monthly payment remains constant as visualised in Figure 13. This structure offers predictability and stability in budgeting, but typically results in higher overall interest costs due to the slower amortisation of the loan.

Figure 13: Illustrative amortisation profile of an annuity mortgage

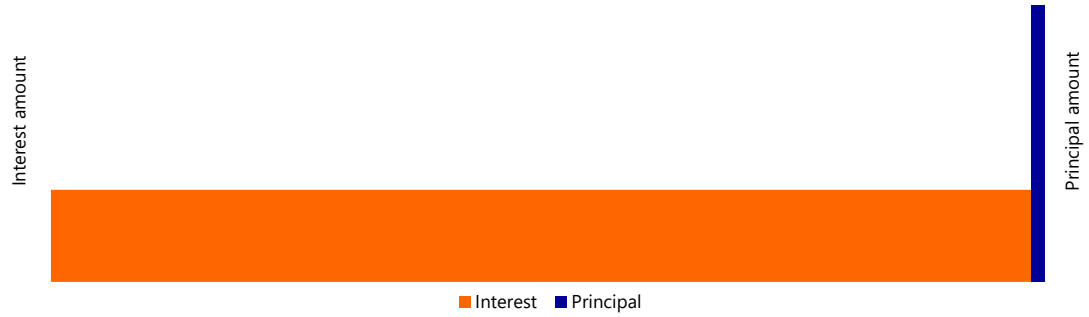


Source: Rabobank

3.4.5 Interest-only (*'aflossingsvrij'*)

Interest-only (I/O) mortgage loans were a popular choice amongst borrowers prior to 2013 and still represent a sizeable share of the outstanding Dutch mortgage debt stock. I/O loans feature principal that is neither being redeemed nor accumulated in linked products. Figure 14 demonstrates that only interest payments are made throughout the loan term, with the full principal amount repaid at maturity. These mortgages were typically used to reduce the monthly mortgage expenses as they consist solely of interest payments, which benefited from the generous tax deductibility, thus resulting in low(er) (net) monthly expenses. However, during the low interest rate years of 2019-2021 in particular, I/O became somewhat more attractive again, due to the low interest payments on the loans resulting in relatively limited tax benefits having to be 'given up' by choosing the interest-only format.

Figure 14: Illustrative amortisation profile of an interest-only mortgage



Source: Rabobank

Up until 2010, there were no hard limits on the origination of I/O. In fact, typical loans would consist of a significant share of interest-only, subject to the originator's underwriting criteria. The updated Mortgage Code of Conduct that came into force in 2011 restricted the interest-only part of mortgage loans to 50% of the value of the house (i.e. a 50% LTV). Furthermore, with the changes to the tax code in 2013, 'new' mortgage loans have to amortise in order to receive tax benefits. As a result, interest-only mortgages comprise only a small share of new mortgage origination nowadays.

The 'older' mortgage products, covered in the sections below, feature a repayment profile similar to that of interest-only mortgages as illustrated in Figure 14. In both cases, the principal is not repaid during the loan term but instead in full at maturity. However, these products differ in that they require an additional monthly contribution. This may take the form of a savings deposit, insurance premium, or investment allocation, which is intended to accumulate sufficient capital to repay the loan in full at maturity.

3.4.6 Bank savings ('*banksparen*')

Up until 2013, bank savings mortgages used to be the second-most popular mortgage product. The structure is largely identical to an annuity mortgage loan in that monthly mortgage expenses consist of an interest part and a principal part, only instead of principal being paid down over the life of the loan, it is instead accumulated in a linked bank savings account. However, unlike an annuity, interest payments, and the tax benefits, are thus maximized over the life of the loan. The interest rate on the linked savings account is typically equal to the interest rate on the mortgage loan itself. Since the interest rate on the savings account is known, the payout is guaranteed.

3.4.7 Savings insurance ('*spaarhypotheek*')

Prior to the introduction of bank savings loans, savings insurance used to be the second-most popular mortgage product. The structure is almost identical to that of bank savings, but instead of a savings account, a life insurance product is linked to the mortgage loan. The borrower pays a monthly insurance premium, which contributes towards capital accumulation for the bullet repayment of the principal amount at maturity. The interest rate on the accumulated premiums is typically equal to the interest rate on the mortgage loan itself. The payout of the life insurance product is guaranteed. The insured principal can often also be claimed in case the borrower dies. In case of two borrowers (as is typical in multi-person households), the life insurance is often cross-linked between them.

3.4.8 Life insurance ('*levenhypotheek*')

Like savings insurance, this structure also uses a life insurance product for the separate accumulation of funds for principal repayment. Unlike savings insurance, however, payouts are not always guaranteed and are subject to the investment returns of the life insurance company.

Life insurance was actually the first mortgage product that achieved maximum tax savings by deferring principal payment until maturity.

3.4.9 Investment insurance ('*beleggingshypotheek*')

This product structure is another version of the insurance mortgage product. Capital is accumulated for the deferred principal payment through investments in linked retail investment accounts, rather than through earning interest on a savings account. Investments usually take place at the discretion of the borrower in a range of pre-defined investment funds. Additions to the product can come in the form of a one-time payment or through periodic additions. Extra additions (but also withdrawals) depend on the assumed rate of return of the investments. As investment returns are uncertain, the payout is not guaranteed for this product. Finally, hybrid loans (or switch mortgage loans) are combinations of bank savings and investment insurance.

3.4.10 'Traditional' mortgage loan products are the new normal

The tax incentives granted to borrowers meant that traditional mortgage loans, such as annuity and linear, were not at all popular in the Netherlands prior to 2013. However, following the changes to the Dutch tax code, now only these loans qualify for interest tax deductibility for 'new' mortgage borrowers and have thus become dominant in new mortgage origination. Nonetheless, the collateral assets of Dutch RMBS transactions can, and do, still contain sizeable shares of interest-only (and similar deferred principal) loans, next to annuity and linear loans. However, this also depends on the issuer/originator and/or year of origination (vintage) and can thus vary substantially across transactions.

3.4.11 Collateral insurance

For Dutch mortgages it is mandatory for borrowers to have property insurance ('*opstalverzekering*') in place for their home. This requirement is typically verified at origination of the mortgage loan. Furthermore, mortgage contracts generally include a clause obligating the borrower to maintain this insurance throughout the life of the loan. In the case of NHG guaranteed mortgages, lenders are required to ensure that the property is adequately insured against risks such as fire and storm damage, and that insurance premiums are paid on time. Overall, there is a strong legal and contractual obligation for borrowers to have their property insured.

3.4.12 Mandatory term life insurance separate from mortgage product

Term life insurance used to be part of the insurance mortgage products, but since the changes to the Dutch tax code and the increase in linear and annuity mortgages, these insurance products are now also offered separately from the mortgage product. Originators can require the borrower to have a term life insurance for the part of the loan that is above a specific LTV threshold, usually set at 80%. However, there are quite some differences between originators, as some do not have it as mandatory at all while the LTV threshold can also differ. When the insurance is required by the originator, it is also mandatory to pledge ('verpanden') the insurance to the originator. In this case, when the borrower passes away, the pay-out goes directly to the originator to ensure the proceeds are used to pay down the mortgage balance.

4 RMBS structures and their features

Dutch RMBS are pass-through securitisation structures in which a dedicated special purpose vehicle (SPV) buys the collateral assets from the originator's[6] balance sheet via a true-sale transaction. In most structures, borrowers are not being notified of this transaction and continue to make their mortgage payments to the originator. The SPV funds itself by issuing different classes of notes to investors, constituting various senior, mezzanine and junior (equity) claims. These notes are also referred to as tranches and typically carry coupons that consist of a floating rate (i.e. 3-month Euribor) plus a margin. The margin is set on the pricing date (when pricing at par), whereas the sale and transfer of the mortgages takes place at a later date, called the closing date.

Although Dutch RMBS structures have become more harmonised over the years, differences still exist across transactions. At a European level, most Dutch Prime RMBS deals comply with the Prime Collateral Securities (PCS) standard, which promotes transparency and quality. Harmonisation within the Dutch market has also been driven by the Dutch Securitisation Association (DSA), an industry group established in 2012 to support issuers and investors. Among other initiatives, DSA members use standardised templates for prospectuses and investor reporting, contributing to consistency across deals.

Further harmonisation was achieved with the implementation of the EU Securitisation Regulation on 1 January 2019, which introduced the 'Simple, Transparent and Standardised' (STS) framework for high-quality securitisations. While STS compliance has become the norm in the Dutch Prime RMBS market, structural differences between transactions remain, even among those labelled as STS. Since the regulation came into force, the Dutch Prime RMBS market has been dominated by STS transactions.

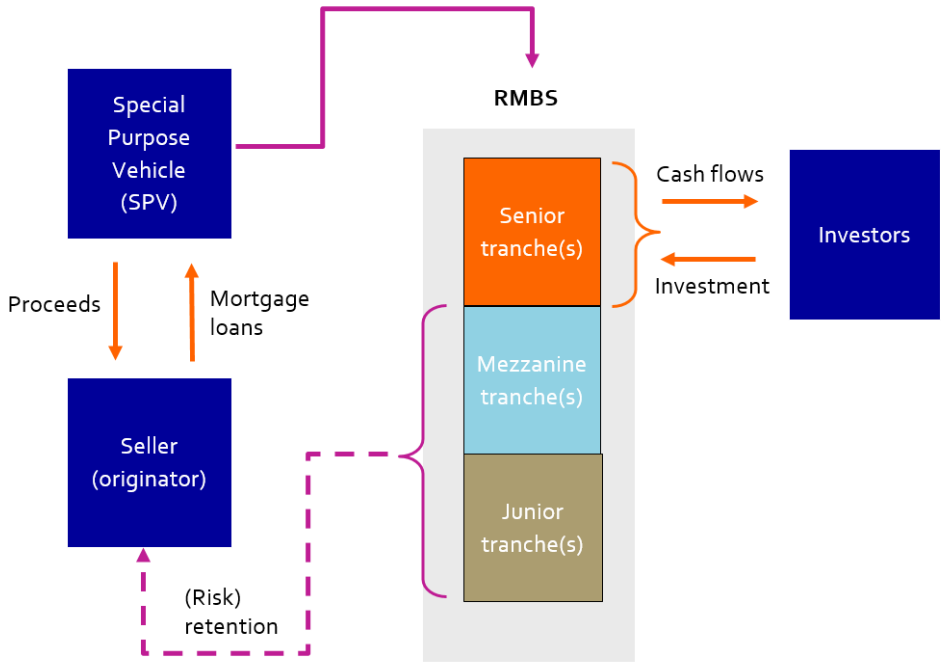
Dutch RMBS structures will be dissected step by step by discussing first a general overview of the structures before moving through the various structural features present in the transactions in the next few sections.

4.1.1 General set-up

Even though identical structures are rare, it is still possible to provide a general outline of a typical 'senior-only' Dutch RMBS structure, as shown in Figure 15. It has to be stressed, however, that the simplified structure shown is not definitive nor fully complete, making thorough analysis of each individual structure important. Next to these 'senior-only' deals aimed at minimising funding costs for the issuer, there are also other transactions that offer mezzanine, and/or junior tranches in addition to the senior tranche, offering a broader diversity of notes to investors.

In a Dutch RMBS transaction, all noteholders have recourse to the SPV according to a specific subordination structure. All Dutch transactions in the past decade have been on a stand-alone basis, which means that each securitisation transaction has its own dedicated pool of mortgage loans – which is also legally transferred to the SPV – serving as collateral for the notes.

Figure 15: Simplified typical (funding) Dutch RMBS structure



Source: Rabobank

4.1.2 Call option and First Optional Redemption Date (FORD)

Virtually all Dutch Prime RMBS transactions have a call option allowing the SPV to redeem the notes in full at a predetermined date. This call option, called the First Optional Redemption Date (FORD), is included to limit the weighted average life of the notes. The WAL is limited to at most 5 years, because if it is longer than 5 years, the notes are not eligible to be included in banks' liquidity buffers (under the LCR regulation). This would make buying the notes very unattractive for bank treasuries, and they are a key part of the investor base. However, it is an option in the end, and so if the seller does not have sufficient funds for redemption and a buyer for the underlying mortgage portfolio cannot be found, the call option will not be exercised. The effective maturity of the notes is then determined by the amortisation profile of the underlying mortgage loans. Although the call option remains exercisable at each subsequent payment date, extension risk persists.[7] A detailed explanation is provided in Section 5.2.2.

4.1.3 Coupon rates and step-up margin

The coupon rates on the notes almost always consist of 3-month Euribor plus a margin. An important feature in many deals is the presence of step-up margins, which come into effect if the SPV does not call the deal on the FORD, resulting in higher coupons. This increase in funding cost creates a strong economic incentive for the seller (or option holder) to call as they typically only receive residual cash flows (e.g. excess spread) after senior noteholders are paid. For senior tranches, the step-up margin is typically between 1.5x and 2.0x the (pre-FORD) original margin. For the subordinated notes, it usually ranges between 1.0x and 1.5x depending on the transaction.

However, the effectiveness of this incentive does depend on the prevailing spread (margin) environment. In deals issued during periods of tight spreads, the absolute increase from the step-up may be modest, making the incentive to call less compelling if spreads have subsequently widened. In such cases, if current spreads are significantly higher than the step-up margin, it may be economically favourable for the issuer not to call the notes, as paying the stepped-up coupon is cheaper than refinancing at current spreads (notwithstanding other call incentives like turbo amortisation). However, this can negatively affect investor confidence, as it undermines

expectations around maturity and call behaviour. Nonetheless, step-up margins remain a key structural tool to encourage timely redemption and maintain investor confidence in the expected maturity profile.

4.2 Collateral cash flows

As briefly explained above, the SPV funds itself by issuing different classes of notes to investors, constituting various senior, mezzanine and junior (equity) claims. These funds are used to acquire the mortgage pool. Then, the cash flows generated by these mortgages will form the basis of what is referred to as 'available funds', the amounts allocated towards paying the coupons and principal on the notes. Often, a distinction is made between the interest (revenue) and principal of these loans.

4.3 Revenue

The available revenue funds typically consist primarily of mortgage interest received, and payments received from the swap counterparty. Additional sources may include interest earned on issuer accounts, prepayment penalties, and net foreclosure proceeds of mortgage receivables not related to the principal. In certain cases, funds may also arise from cash advance facility drawings (in the event of liquidity shortfalls) or from reserve account drawings (to cover losses).

4.4 Principal

Similarly, the available principal funds mainly consist of scheduled repayments and (unscheduled) prepayments of the principal loan amount on the mortgages. Further cash inflows could come from sources such as net foreclosure proceeds, repurchases or sales of mortgage receivables, and credits to the PDL ledger, amongst others.

4.5 Priority of payments

4.5.1 Allocating cash flows from the collateral

A sequential pay structure is typically used in securitisation transactions, where the pass-through cash flows from the underlying mortgage loans are distributed to noteholders. The notes are paid down in order of seniority, e.g. first to class A then class B and so on. In general, interest (revenue) and principal payments on the mortgage loans in the structure are separated into two distinct cash flow streams or 'waterfalls'. If the SPV cannot meet its obligation to the most senior noteholders (enforcement), these two waterfalls are replaced by one cash flow sequence for both the interest and principal payments.

4.5.2 Interest waterfall

The available revenue funds are mainly used to take care of the coupon payments on the issued notes. However, before interest is paid out to noteholders, other liabilities first have to be paid. Typically, fees and expenses payable to transaction parties, such as the directors, trustee, servicer, and the issuer administrator, as well as amounts due to the liquidity facility provider and swap counterparty have priority. Subsequently, interest on the notes is paid in accordance with their seniority in the capital structure. Next, any losses recorded in designated 'loss accounts' (explained later) are allocated in order of seniority, followed by replenishment of the reserve account. Any remaining funds typically constitute the 'Deferred Purchase Price', representing the economic discount at which the mortgage pool was sold. This amount is usually paid to the originator, who often retains the first loss position through junior or residual notes.

4.5.3 Principal waterfall

Principal payments on the notes generally reflect the amortisation profile of the underlying mortgage loans and may thus vary depending on the composition of products in the collateral pool. Typically, the most senior note is amortised in full before subordinated tranches begin to receive principal payments, exposing it to the highest level of prepayment risk. That's the case because any early repayments by borrowers are directed first to repaying the senior notes, accelerating its redemption and affecting its cash flow profile. However, in the case of a 'revolving' pool, available principal collections are first used to purchase new mortgage loans, such as further advances or replacement receivables, before any amortisation of the notes occurs. Any remaining funds after principal obligations are met may constitute the 'Deferred Purchase Price', typically paid to the originator, representing the economic discount at which the mortgage pool was sold.

4.6 Credit enhancement

Dutch RMBS transactions feature a considerable degree of credit protection for the senior tranches. Direct credit enhancement is achieved through subordination of the mezzanine and junior tranches, and the instalment of a reserve account fund. While the presence of excess spread in the swap structure is not officially credit enhancement, it is (in essence) a form of indirect credit enhancement.

4.6.1 Subordination

Subordination provides significant credit enhancement for the senior tranche. It ensures that losses are first absorbed by the subordinated tranches, thereby protecting senior noteholders. Additionally, senior tranches benefit from priority in both interest and principal payments under the transaction's payment waterfall. Furthermore, subordination typically ensures that the replenishment of principal losses on senior tranches takes precedence over interest payments to junior tranches.

4.6.2 Reserve account

The reserve account provides additional liquidity and credit enhancement within the structure. It may be used to cover shortfalls in interest payments – and in some cases principal payments – on the notes, subject to the transaction's payment waterfall and subordination rules. At closing, the reserve account is typically funded using proceeds from the issuance of junior notes. The reserve account is usually sized at around 1% to 2% of the initial principal balance of the mortgage pool. In certain structures, the reserve account may be set at a lower level, or even zero, at closing. A target level is typically defined for the reserve account, which is built up and replenished over time using excess spread. The reserve account generally remains static and does not amortise in line with the note balances, although this may vary by structure.

4.7 Excess spread

Excess spread – defined as the residual income after all senior expenses and note interest are paid – can be used to cover shortfalls in interest and principal payments (typically through reductions in Principal Deficiency Ledgers, or PDLs), and, if required, to replenish the reserve account. Excess spread serves as a strong form of indirect credit enhancement, as it is typically available throughout the life of the transaction, provided the interest rate swap remains in place, which is usually until the final maturity of the mortgage loans.

4.8 Loss allocation

4.8.1 Loss recording

In Dutch RMBS structures, not only are the cash flows from the underlying mortgage loans passed through to the various note tranches, but realised losses on the loans are also captured and allocated within the structure. Typically, losses are recorded in a dedicated ledger known as the Principal Deficiency Ledger (PDL). Each tranche has its own PDL, and losses are allocated in reverse sequential order, meaning the most junior tranches are debited first, and the senior tranches last.

The PDL accumulates with realised principal losses over time but can be reduced through the revenue waterfall using excess spread. This mechanism allows the structure to absorb losses over time without immediately impacting noteholders. As such, excess spread acts as an important form of indirect credit enhancement, and (in well-performing transactions) it often ensures that PDL balances remain at or return to zero.

4.9 Hedging

Since the mortgage loans in the collateral pool typically pay fixed interest rates, the SPV receives predominantly fixed-rate income. In contrast, the coupon payments on the issued notes are typically floating-rate, creating an interest rate mismatch that needs to be hedged. This risk is most commonly mitigated through an interest rate swap, although an interest rate cap is sometimes also used. Both hedging instruments are explained in more detail below.

4.9.1 Interest rate swap

Most Dutch RMBS transactions use a swap structure that converts most non-principal based cash flows from the underlying mortgage loans into the coupon payments on the notes. Senior fees and expenses are typically incorporated into the swap via a deduction on the fixed leg payment. The swap counterparty is usually the seller; however, if the seller's credit rating is inadequate or if the seller is not rated, another bank with a sufficient credit rating will step in as swap counterparty. In such cases, the swap counterparty often enters into a back-to-back swap with the seller.

Mortgage loan interest rates generally exceed the coupon rates on the notes, i.e. there is excess interest. Since the seller often acts as the swap counterparty, this structure allows them to retain a portion of the mortgage revenue. However, the SPV's share of these excess revenues is not always zero. The SPV may also retain some of this excess spread, which typically amounts to a guaranteed 35–50 basis points annually on the notional balance. This retained excess spread provides additional (indirect) credit enhancement and is usually deducted from the fixed leg of the swap, i.e. from the SPV's payments to the swap counterparty.

Some Dutch RMBS deals, such as **Cartesian** and **EDML**, deviate from this standard swap structure. In these cases, the fixed leg of the swap reflects a weighted average swap rate rather than the scheduled mortgage interest on the loans. The floating leg pays Euribor flat and does not cover the note margin. As a result, the difference between the mortgage interest and the weighted average swap rate is used to pay senior fees and note margins. Any remaining amount flows to investors as excess spread in the interest waterfall. That said, each transaction is different and swap structures can vary significantly across transactions.

4.9.2 Interest rate cap

Aside from the typical swap structure, a number of Dutch RMBS transactions use interest rate caps to manage interest rate risk. Under a cap structure, the SPV receives payments equal to the difference between the floating rate and a predetermined strike rate, multiplied by the notional

amount. The strike rate is typically linked to factors such as the weighted-average interest rate of the underlying mortgage pool. However, unlike swaps, interest rate caps do not fully eliminate interest rate risk, as they only provide protection when the floating rate exceeds the strike rate, leaving the structure exposed to rate movements below that threshold. On the other hand, there is less counterparty risk present in these structures, in our view.

Additionally, the term of the interest rate cap agreement often does not run until the final maturity of the mortgage loans, thus placing more emphasis on the call risk present in the structures. However, this is often mitigated to some extent by the inclusion of additional incentives for calling the transaction on the first optional redemption date. Overall though, cap-based structures often see additional credit enhancement compared to those with swaps (all else equal) to mitigate some of the remaining interest rate risk present in the structure. That said, transaction features vary, and this may not apply universally.

4.10 Liquidity support/enhancement

In addition to credit enhancement, additional liquidity support can be added via a so-called cash advance facility.

4.10.1 Cash advance facility

The cash advance facility is an extra liquidity line that is present in most Dutch RMBS transactions. This facility is simply a stand-by agreement with a provider to enable the SPV to make coupon payments on the tranches on a temporary basis. Although this risk is remote, it could be the case that in a certain period the cash flows are insufficient to cover interest payments on the tranches. Alternatively, it could also be the case that the SPV is not able to make the payments due to a servicer interruption. The SPV can then draw on the liquidity facility in order to make the required payments. However, the facility has to be repaid and eventually such cash flows rank senior to the notes in the revenue waterfall.

4.11 Other features

4.11.1 Revolving pools

Some Dutch RMBS structures feature revolving pools in order to mitigate prepayment risks for investors. Revolving pools involve the replacement of (partially) prepaid mortgage loans with new loans in the collateral pool, thus eliminating prepayment risk. For instance, if prepayments in a period amount to 5%, on a pool of €500mn, this would mean that €25mn of new loans are subsequently added to the pool. The principal cash flows are thus not used to pay down the senior notes. Similarly, the scheduled principal repayments are also used to add new loans to the pool, as these also reduce the outstanding amount of the portfolio. In order to avoid a deterioration in asset quality of the pool, the replacement loans are typically subject to stringent replacement criteria. Hence, the seller cannot cherry pick the mortgage loans it will use to replace those that have been prepaid.

4.11.2 Risk retention

In order to comply with regulations in Europe, sellers need to retain a material net economic interest in a securitisation of at least 5%. For typical funding transactions, the seller retains the mezzanine and junior tranches such that first-loss risk remains with the seller and ensuring that the sellers' interests are aligned with investors' interests. However, for full capital stack deals for instance, it is also possible for the seller to retain a part of every tranche in order to satisfy the risk retention requirement (i.e. vertical retention). Alternatively, the seller can even hold a part of the senior tranche or use a random selection of the pool. The specific method of complying is

somewhat less relevant as long as a material net economic interest in the transaction is retained in order to have 'skin in the game'.

5 Risks

Despite the credit enhancement included in Dutch Prime RMBS transactions, there remain several risk factors that should be taken into account by investors. The main risk is credit risk. Other important risks are maturity risk and interest rate risk relating to the notes. In addition, there are certain embedded risks, such as commingling and set-off risk.

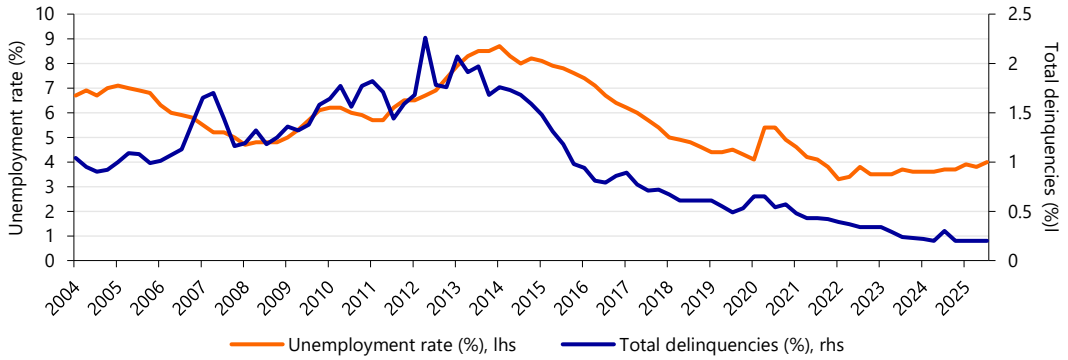
5.1 Credit risks

Credit risks of senior Dutch Prime RMBS tranches are to a large extent mitigated by the excess spread, subordination and other forms of credit enhancement present in the structures. Nevertheless, collateral risk remains important, particularly for investors holding mezzanine and junior notes in RMBS transactions. Ultimately, the collateral risk of the transaction relates to whether borrowers can make the payments on their mortgages. Late payments (arrears) and defaults are the core risks and they depend on various factors. In this chapter the main factors impacting credit risk from a probability of default perspective are examined first. This is followed by a brief discussion of the risks related to the properties securing the pool of mortgage loans, i.e. the loss-given default, and that's mainly the state of the housing market and house prices. The focus is on key factors driving credit risk rather than an exhaustive list of relevant indicators.[8]

5.1.1 Probability of default

Looking at risks at the borrower-level and the probability of a borrower defaulting, unforeseen life events are the main driver of mortgage defaults in the Netherlands, with unemployment, divorce, and health-related income loss among the most significant contributors. Unemployment is a key driver of defaults and is clearly related to economic developments and the state of the overall economy. The strong relationship between unemployment and delinquencies is illustrated in Figure 16, which shows total delinquencies on Dutch Prime RMBS transactions alongside the unemployment rate. In the aftermath of the 2008 financial crisis, unemployment in the Netherlands rose steadily before peaking in late 2013. Consequently, the level of delinquencies in Prime RMBS transactions increased as well. However, since then, there has been a steady decline in the unemployment rate with delinquency levels following suit and currently remaining very low.

Figure 16: Unemployment rate and Dutch Prime RMBS total delinquencies



Source: Statistics Netherlands, S&P

Overall, cyclical developments and the economic outlook are vital considerations in assessing the credit risks on mortgage loans, and they are a key determinant for the probability of default.

Other relevant factors such as divorce or disability (and associated loss of income) are mostly unrelated to macro-economic developments. And whilst there is no data on the relative importance of each cause for the overall mortgage market (only for NHG), divorce is—perhaps surprisingly so—an important driver of defaults. According to NHG data, divorce has historically been the leading cause of loss claims, followed by unemployment and/or loss of income. Since

divorce is covered by NHG, this mitigates the credit risk for NHG guaranteed mortgages.[9] Although divorce rates are inherently difficult to forecast accurately, they are relatively steady over time.

Payment default risks are thus largely related to economic developments, but there is a strong mitigating factor for credit risk at the borrower-level, namely the Netherlands' strong social security system, which will be discussed next.

5.1.2 Generous social security system helps mitigate credit risks

All else equal, higher unemployment leads to an increase in borrowers not fulfilling their payment obligations and eventually also to a higher probability of default. However, the generous social security system that is in place in the Netherlands means that for the majority of borrowers, unemployment typically does not lead to sudden missed mortgage payments.

In the Netherlands, employees are entitled to unemployment benefits when they are fired (not when resigning voluntary). Compared to other countries, Dutch unemployment insurance is relatively generous, both in the amount—75% of last earnings in the first two months and 70% thereafter—and in duration,—3 months minimum and scaled per years worked—but limited to a maximum of 2 years. In some sectors, collective labour agreements provide for up to 14 additional months of unemployment benefits. These benefits are funded by the private sector rather than the government, and approximately one-fifth of the Dutch workforce is covered by such arrangements.

Additionally, after unemployment benefits end, there is another form of social security called income assistance. Unlike unemployment benefits, this aid is means-tested and only ensures minimal living standards. Under certain conditions (e.g. level of home equity), even homeowners are entitled to receive this form of support.

Lastly, the Dutch social security system also offers a range of supplementary benefits, including disability, survivor, long-term care and child benefits for entitled residents and even healthcare allowances for those with lower incomes.

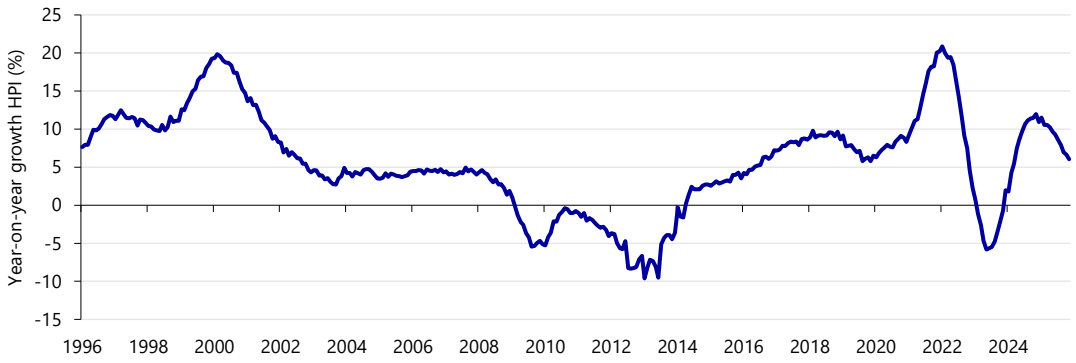
Overall, the Dutch social security system can help to partially mitigate credit risk by allowing borrowers to bridge temporary unemployment or by providing some form of income in the case of unforeseen life events such as disability.

5.1.3 Credit risk: Loss-given default

The loss-given default (LGD) is highly dependent on the development of house prices, making the health of the housing market an important consideration for investors. The recovery rates of delinquent loans are directly linked to house prices and periods of strong house price appreciation typically result in low loss-given default (on average). However, another important consideration is whether the mortgage loan benefits from NHG, as the guarantee significantly reduces the LGD due to residual losses being covered.

In the aftermath of the 2008 financial crisis, Dutch house prices declined steadily, bottoming out around mid-2013. From that point onward, the market entered a prolonged upswing, with annual price growth peaking at around 20% in late 2021 and early 2022. A brief correction of decreasing house prices occurred in 2023, but this was quickly offset in early 2024, after which prices resumed their upward trend. Although the pace of growth has moderated in 2025, the market continues to be in strong shape, supported by rising transaction volumes, strong macroeconomic fundamentals—including high wage growth and low unemployment—generally healthier household finances, and persistent supply shortages.

Figure 17: House price growth over the years



Source: Statistics Netherlands (CBS)

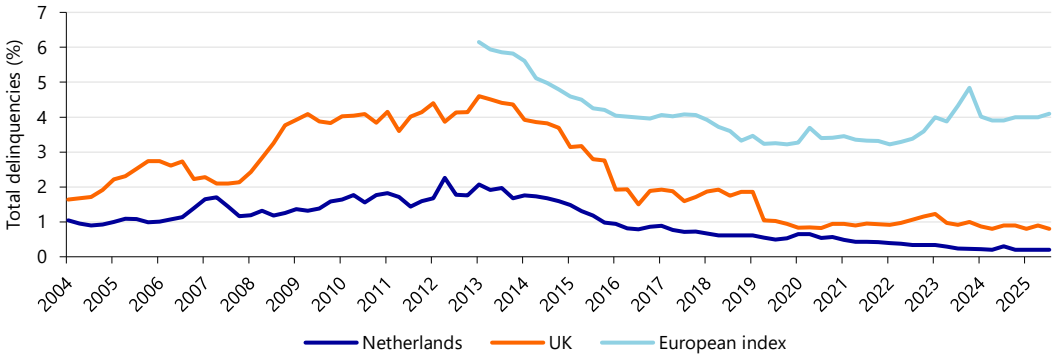
Even though interest rates have come down from their peaks, they remain a factor in affordability. Importantly, the rapid price increases over the past decade combined with the gradual tightening of underwriting standards have significantly affected the accessibility of homeownership, raising own-fund requirements and disproportionally affecting first-time buyers.

Nonetheless, in recent years (nominal) borrowing capacity has increased due to higher incomes and a degree of easing in lending standards (e.g. for energy-efficient houses, more weight given to second income), putting upward pressure on house prices. Looking ahead, our housing economists forecast continued robust price growth in 2026 and 2027, alongside high transaction volumes, driven in part by the sale of rental properties to owner-occupiers (the so-called 'uitpondgolf').

5.1.4 Historical credit performance

The social security system described previously is in our view a significant contributor to the strong performance of Dutch RMBS during crisis periods. Dutch RMBS, and European ABS in general, came out of the 2008 Global Financial Crisis (GFC) relatively unscathed, especially when compared to the US. Whilst delinquency levels of Dutch Prime RMBS gradually rose during the GFC and its aftermath, they peaked only just above 2% and were well below those seen for UK Prime RMBS for instance.

Figure 189: Total delinquency levels Prime RMBS transactions for selected jurisdictions

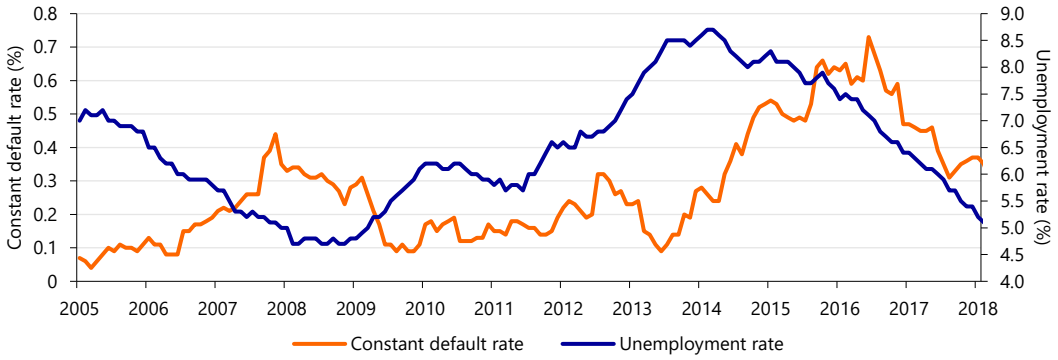


Source: S&P

A similar picture emerges when looking at defaults and losses on Dutch Prime RMBS collateral throughout the financial crisis. Default rates held in relatively well initially and only started to rise meaningfully after 2013, which is when the housing market bottomed out in terms of price declines. The previously discussed substantial safety nets provided by the Dutch social security system result in a (considerable) lag between when a borrower loses their job and when this can impact payments on their mortgage loan. Indeed, the unemployment rate peaked in 2014, but

constant default rates (i.e. new defaults) on mortgage loans only peaked in 2016 at around 0.7% (of the original balance), after which they gradually started declining again.

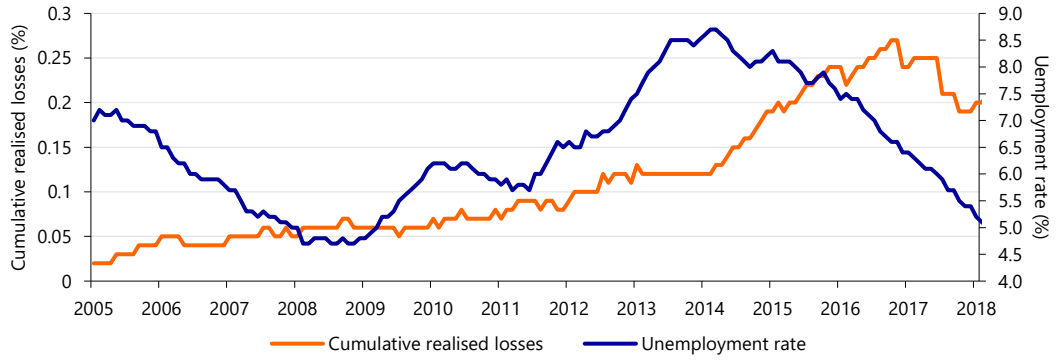
Figure 19: Historical default rates and unemployment



Note: Constant default rate is defined by Fitch as 1 - (1 - ([Gross defaults (Period)] / [Collateral Balance (Excl. Defaults)] at previous period)^Annualisation rate (Period)
Source: Statistics Netherlands, Fitch

Given the relatively low delinquency and default levels, even during the depths of the financial crisis, it is no surprise that losses on mortgage loans in Dutch Prime RMBS transactions have been very low as well. After rising steadily over several years, cumulative realised losses peaked at just under 0.3% (of the original balance) in late 2016, which is ultimately a very low amount of losses given the severity of the crisis for the Dutch housing market.

Figure 20: Historical cumulative realised losses and unemployment



Note: Realised cumulative losses are calculated by Fitch as [Realised losses (cum)] / [Collateral Balance (Incl. Defaults)] at closing + New Loans Purchased (Period)] since closing
Source: Statistics Netherlands, Fitch

Looking at the current situation, credit risks for Dutch mortgage loans are (very) low, as labour participation rates are at record highs, and the unemployment rate in the Netherlands remains low at around 4% (implying a low probability of default). At the same time, over a decade of near-continuous growth in house prices has boosted home equity levels (resulting in a low loss-given default) for the vast majority of homeowners. Ultimately, whilst economic growth is expected to be relatively modest, our economists expect only a slight increase in the unemployment rate, resulting in limited credit risks on Dutch mortgage loans in our view.

5.2 Maturity risks

Similar to any other investment, investors in Dutch Prime RMBS transactions are left with certain risks. The main investment risks for senior noteholders are related to maturity risk, both prepayment and call (or extension) risk.

5.2.1 Prepayment risk

Unlike traditional bonds, the maturity of RMBS tranches is generally expressed as a Weighted Average Life (WAL) rather than a fixed maturity date. This is because payments from the underlying mortgage pool are passed through to noteholders, and the timing of these payments can vary. As a result, there is a degree of uncertainty around the timing of cash flows, thus exposing investors to prepayment risk.

The WAL concept assumes that mortgage loans are redeemed prior to their legal maturity, incorporating assumptions about scheduled principal repayments and unscheduled prepayments. Prepayments are often expressed as the Conditional Prepayment Rate (CPR), which is the proportion of principal prepaid over a given period, usually on an annual basis. For example, a CPR of 5% implies that 5% of the outstanding principal is expected to be prepaid each year.

In pricing RMBS tranches, a fixed expected CPR is typically used to calculate the WAL, often based on the historical performance of the mortgage portfolio. However, the WAL of most tranches is also constrained by the first optional redemption date (FORD), the earliest point at which the notes may be called. In practice, WAL calculations often assume that tranches are called at their first call date. However, if the call option is not exercised (for any reason), the notes' redemption date may be significantly extended, and their actual maturity will then depend on the realised CPR and scheduled principal repayments.

5.2.2 Call risk (extension risk)

Ignoring prepayments, the maturity of the tranches often depends on the use of the call option allowing the SPV to redeem the notes in full at the FORD. If the call is not exercised, then the effective maturity of the notes will depend on the amortisation profile of the underlying mortgage loans. Even though the call can still be exercised at each subsequent payment date, extension risks clearly do exist.

As this maturity risk is structured in Dutch RMBS (and European RMBS more generally) transactions, it is in reality mainly related to the (credit) strength of the seller (originator) as the seller is almost always the party the repurchases the mortgage loans. Hence, the strength of the seller still fulfils an important role in Dutch RMBS, despite the fact that the underlying collateral assets are fully separated from the seller's balance sheet. It is therefore necessary to perform credit analysis of the seller on an ongoing basis.

However, with the broadening of the issuer landscape over the years, call risk has become more economic in nature for a number of full capital stack RMBS deals, some of which include remarketing options (i.e. purely economic calls). If spreads go up materially in the market, the risk of the call not being exercised will increase. That said, we've so far seen all these transactions having been called, even in higher spread environments. Still, as most of the Dutch issuers use RMBS for funding purposes, they have a significant stake in ensuring they are able to issue in the future at attractive spreads, so calls are the norm even if not always completely sound from a purely economic perspective—essentially, reputation takes precedence over economics in our view.

5.3 Interest rate risk

Interest rate risk is an important risk factor for Dutch RMBS transactions given the floating payments on the notes versus the often lengthy fixed-rate periods on the assets. However, in the Dutch RMBS market, there are two ways in which interest rate risk is mitigated.

The best way to hedge the interest rate risk is through the use of an interest rate swap (Section 4.9.1), in which most non-principal based cash flows from the underlying mortgage loans are swapped into coupon payments on the notes. This ensures that interest payments on the notes can be made regardless of the (level of) interest rates on the mortgage loans.

The alternative is to use an interest rate cap (Section 4.9.2) to mitigate the interest rate risk. With an interest rate cap, payment is received when the floating rate on the tranches exceeds a predetermined strike rate. However, interest rate risk is not fully eliminated when using an interest rate cap instead of a swap. Over the years, more transactions with caps or different type of swaps have emerged, hence, interest rate risk has (to some extent) become more important as well, though increased credit enhancement can also be used to mitigate remaining interest rate risks.

5.4 Embedded risks in the structure

The transfer of the mortgage loans from the seller's balance sheet, as well as the complex product nature of Dutch mortgage loans, results in some embedded risks in the Dutch RMBS structure. Commingling and set-off are the most relevant risks and typically follow from insolvency and bankruptcy events.

5.4.1 Commingling risk

Commingling refers to the risk that cash flows of different assets and liabilities cannot be properly separated in an insolvency situation, i.e. they are commingled. Although the legal and economic ownership of the underlying mortgage loans has been transferred to the SPV, the cash flows of the loans often flow through the originator in its capacity as servicer of the mortgages. If the originator is declared bankrupt, there is a risk that the cash flows belonging to the SPV will be interrupted and will be commingled with the cash of the originator. While commingling is ultimately a temporary risk, it can have quite negative consequences for liquidity in the Dutch RMBS structure.

Commingling risk can be mitigated by using collection foundations for the collection of revenues from the mortgage loans, and/or by implementing stand-by servicing agreements. Another, less common, alternative is installing a commingling guarantor in the structure, who guarantees proper liquidity flows following an insolvency of the seller.

5.4.2 Set-off risk

Similar to commingling risk, set-off risk could also follow from a bankruptcy situation. In case of insolvency, an affected person or entity is entitled to net credit and debit claims (subject to certain conditions). However, set-off risk is not confined to bankruptcy proceedings and may arise whenever mutual claims exist that can legally be netted or set off, although the available set-off options tend to be broader in an insolvency scenario. Since the RMBS structure has only the borrower's liabilities, i.e. the mortgage loans as collateral, netting by the borrower could thus lead to losses on the principal. Set-off in Dutch structures is especially relevant given the complicated product structure and the presence of linked bank and insurance products. However, the product structure has significantly simplified over the last decade due to increased origination of linear and annuity mortgages.

Set-off risk consists of two different types.

1. Product set-off could occur in the linked accounts that are used for capital accumulation. If the bank or insurer becomes insolvent, the borrower could attempt to offset losses in accumulated capital (e.g. in an insurance product) by netting the losses against the mortgage loan. Linear and annuity mortgages have no product set-off risk since there is no capital being accumulated and the loans are instead paid off during the life of the mortgage.

Product set-off in savings-based mortgage products can be mitigated by the use of sub-participation agreements. In these structures, the mortgage loan (liability of the borrower) and the accumulated capital in the dedicated savings account or insurance product (asset of the borrower) will be wrapped into an artificial annuity mortgage loan, so that one net-liability of the borrower

will occur in the SPV. Set-off by the borrower is still possible, but these risks are then completely transferred to the relevant insurer or bank.

2. Deposit set-off extends beyond the mortgage loan itself and covers the potential netting of all assets and liabilities that an individual holds with a bank. This risk exists at all times, not only in bankruptcy. However, a bank's insolvency increases the likelihood that set-off will be exercised, particularly in structures involving construction deposits ('bouwdepots'), where funds are held on behalf of the borrower. Although this risk is only relevant for deposit-taking institutions, it is significantly mitigated by the Dutch deposit guarantee scheme, which protects deposits up to €100,000. When depositors rely on this guarantee, their set-off rights are waived.

6 Appendix

Table 4: Overview of (active) Dutch Prime RMBS issues

Programme name	*Last issue date*	*Originator*	*Deals since 2015*
Arena NHG	Jun-16	Delta Lloyd	1
Bastion	Nov-22	MeDirect Bank	3
Candide	Jun-25	Lloyds Bank	3
Cartesian	May-21	Venn Partners	6
DCDML	Oct-16	Dynamic Credit/Elan Woninghypotheken	1
Delphinus	Jan-25	ASR	2
DRMP	Nov-16	Achmea Hypotheken	2
Dutch MBS	Nov-18	NIBC Bank	1
EDML/(EDML Blue)	Oct-24	Elan Woninghypotheken/Venn Partners	7
Green/Golden Apple	Jun-25	Argenta Spaarbank	4
Hypenn	Dec-16	NN Bank	4
Orange/ Green Lion	Jun-24	ING	1
Prinsen Mortgage Finance	Apr-22	Athora Group	1
Saecure	Mar-24	Aegon	5
(Green) Storm	Feb-25	Obvion	21
Strong	Dec-18	Obvion	2
Tulip Mortgage Funding	Sep-24	Tulp Group	3
Weser Funding	Oct-25	Oldenburgische Landesbank	2

Source: ConceptABS

[1] Due to LCR requirements, for which the WAL should be 5 years or less.

[2] Alignment is intended with the Green Bond Principles and the EU Taxonomy Technical Screening Criteria for buildings; no alignment with the EU Taxonomy Minimum Safeguards is claimed.

[3] Other financial institutions are mainly finance companies (such as 'regiepartijen'?), some securitisation vehicles and other types of institutions, but a significant proportion of OFIs are part of banking and insurance groups, but are not classified as banks or insurers. See DNB's publication and statistics page for exact definitions and details.

[4] For simplicity, we have ignored an additional general tax credit benefit as a result of the decrease in income due to the deduction of mortgage interest from taxable income. Furthermore, we note that the reduction in taxable income also increases some income dependent tax credits, resulting in additional fiscal advantages of home ownership for some households.

[5] An earlier reform, in 2001, already limited the maximum duration of the mortgage interest deductibility to 30 years.

[6] In many cases, the seller—responsible for selling the mortgage pool to the SPV—is also the originator, the entity that initially granted the mortgage loans to borrowers.

[7] Moreover, Dutch Prime RMBS often include a clean-up call option. This allows the seller to repurchase all mortgage receivables when the aggregate net outstanding principal balance is not more than 10%.

[8] For instance, we are not discussing loan-specific factors such as type of loan (interest-only versus annuity), which can impact credit risk. Nore do we discuss interest rate risk for borrowers that could arise after a loan's fixed-rate period ends.

[9] However, this can introduce moral hazard though, as borrowers with an underwater mortgage may choose to default strategically if they are protected by NHG insurance and qualify for NHG following a divorce. See https://www.dnb.nl/en/publications/research-publications/working-paper-2022/749-till-debt-do-us-part-strategic-divorces-and-a-test-of-moral-hazard/

RaboResearch
Global Economics & Markets
mr.rabobank.com

Global Head

Jan Lambregts
+44 20 7664 9669
Jan.Lambregts@Rabobank.com

Macro Strategy

Global

Michael Every
Senior Macro Strategist
Michael.Every@Rabobank.com

Europe

Elwin de Groot
Head Macro Strategy
Eurozone, ECB
+31 30 712 1322
Elwin.de.Groot@Rabobank.com

Bas van Geffen
Senior Macro Strategist
ECB, Eurozone
+31 30 712 1046
Bas.van.Geffen@Rabobank.com

Stefan Koopman
Senior Macro Strategist
UK, Eurozone
+31 30 712 1328
Stefan.Koopman@Rabobank.com

Maartje Wijffelaars
Senior Economist
Italy, Spain, Eurozone
+31 88 721 8329
Maartje.Wijffelaars@Rabobank.nl

Leander Kalff
Macro Strategist
+31 88 723 8742
Leander.Kalff@Rabobank.nl

Americas

Philip Marey
Senior Macro Strategist
United States, Fed
+31 30 712 1437
Philip.Marey@Rabobank.com

Christian Lawrence
Head of Cross-Asset Strategy
Canada, Mexico
+1 212 808 6923
Christian.Lawrence@Rabobank.com

Mauricio Une
Senior Macro Strategist
Brazil, Chile, Peru
+55 11 5503 7347
Mauricio.Une@Rabobank.com

Renan Alves
Macro Strategist
Brazil
+55 11 5503 7288
Renan.Alves@Rabobank.com

Molly Schwartz
Cross-Asset Strategist
+1 516 640 7372
Molly.Schwartz@Rabobank.com

Asia, Australia & New Zealand

Teeuwe Mevissen
Senior Macro Strategist
China
+31 30 712 1509
Teeuwe.Mevissen@Rabobank.com

Benjamin Picton
Senior Macro Strategist
Australia, New Zealand
+61 2 8115 3123
Benjamin.Picton@Rabobank.com

FX Strategy

Jane Foley
Head FX Strategy
G10 FX
+44 20 7809 4776
Jane.Foley@Rabobank.com

Credit Strategy & Regulation

Matt Cairns
Head Credit Strategy & Regulation
Covered Bonds, SSAs
+44 20 7664 9502
Matt.Cairns@Rabobank.com

Bas van Zanden
Senior Analyst
Pension funds, Regulation
+31 30 712 1869
Bas.van.Zanden@Rabobank.com

Cas Bonsema
Senior Analyst
Financials
+31 6 127 66 642
Cas.Bonsema@Rabobank.com

Maartje Schriever
Analyst
ABS
+31 6 251 43 873
Maartje.Schriever@Rabobank.com

Lyn Graham-Taylor
Senior Rates Strategist
+44 20 7664 9732
Lyn.Graham-Taylor@Rabobank.com

Agri Commodity Markets

Carlos Mera
Head of ACMR
+44 20 7664 9512
Carlos.Mera@Rabobank.com

Charles Hart
Senior Commodity Analyst
+44 20 7809 4245
Charles.Hart@Rabobank.com

Oran van Dort
Commodity Analyst
+31 6 423 80 964
Oran.van.Dort@Rabobank.com

Andrick Payen
RaboResearch Analyst
+1 212 808 6808
Andrick.Payen@Rabobank.com

Energy Markets

Joe DeLaura
Senior Energy Strategist
+1 929 697 5584
Joe.DeLaura@Rabobank.com

Florence Schmit
Energy Strategist
+44 20 7809 3832
Florence.Schmit@Rabobank.com

Client coverage

Wholesale Corporate Clients

Martijn Sorber	Global Head	+31 30 712 3578	Martijn.Sorber@Rabobank.com
Hans Deusing	Europe	+31 30 216 9045	Hans.Deusing@Rabobank.com
Neil Williamson	North America	+1 212 808 6966	Neil.Williamson@Rabobank.com
Adam Vanderstelt	Australia, New Zealand	+61 2 8115 3102	Adam.Vanderstelt@rabobank.com
Ethan Sheng	Asia	+852 2103 2688	Ethan.Sheng@Rabobank.com
Ricardo Rosa	Brazil	+55 11 5503 7150	Ricardo.Rosa@Rabobank.com

Financial Institutions

Short-term Interest Rates

Marcel de Bever	Global Head	+31 30 216 9740	Marcel.de.Bever@Rabobank.com

Bonds & Interest Rate Derivatives

Henk Rozendaal	Global Head Fixed Income	+31 30 216 9423	Henk.Rozendaal@Rabobank.com

Solutions

Sjoerd van Peer	Global Head	+31 30 216 9072	Sjoerd.van.Peer@Rabobank.com

Relationship Management

Rogier Everwijn	Global Head	+31 30 712 2440	Rogier.Everwijn@Rabobank.com
Rob Eilering	Banks	+31 30 712 2162	Rob.Eilering@Rabobank.com
Petra Schuchard	Insurers		Petra.Schuchard@Rabobank.com
Frank Dekkers	Asset Managers		Frank.Dekkers@Rabobank.com
Javier Alvarez de Eerens	MDB	+31 30 712 1015	Javier.Alvarez@Rabobank.com
Christel Kleinhaarhuis	Fintech		Christel.Klein.Haarhuis@Rabobank.com

Capital Markets

Laura Bijl	Global Head	+31 88 726 3254	Laura.Bijl@Rabobank.com
Christopher Hartofilis	Capital Markets USA	+1 212 808 6890	Christopher.Hartofilis@Rabobank.com
Joicy Dinh	Capital Markets Asia	+852 2103 2613	Joicy.Dinh@Rabobank.com
Adriana Gouveia	Capital Markets Brazil	+55 11 5503 7305	Adriana.Gouveia@rabobank.com
Willem Kröner	Global Head ECM	+31 30 712 4783	Willem.Kroner@Rabobank.com
Harman Dhami	DCM Syndicate	+44 20 7664 9738	Harman.Dhami@Rabobank.com
Crispijn Kooijmans	DCM FIs & SSAs	+31 30 216 9028	Crispijn.Kooijmans@Rabobank.com
Bjorn Alink	DCM Securitisation & Covered Bonds	+31 30 216 9393	Bjorn.Alink@Rabobank.com
Othmar ter Waarbeek	DCM Corporate Bonds	+31 30 216 9022	Othmar.ter.Waarbeek@Rabobank.com
Joris Reijnders	DCM Corporate Loans	+31 30 216 9510	Joris.Reijnders@Rabobank.com
Brian Percival	DCM Leveraged Finance	+44 20 7809 3156	Brian.Percival@Rabobank.com

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